tures much lower than those which occur annually at PROSKAV, where the investigations were made, did not injure the germinative capacity of the spores. The mycelium also remains alive and produces new spore-cushions in the spring.

The conidia of *Monilia fructigena*, which occurs chiefly on pomaceous fruits, lose their capacity for germination very early in the winter. The fungus persists solely by means of the mycelium. New spores are produced in the spring, when the mummies covered with the crust-like spore-cushions are soaked and kept in a warm place.

The twig-blight of stone-fruits, which flower early in the season, is caused entirely by *Monilia cinerea*, whose spore-cushions are produced much earlier than those of *M. fructigena*. The spores of *M. fructigena* are not formed at the flowering time of the stone-fruits.—H. HASSELBRING.

Ecology of mosses.—A careful study of the mosses of Isle Royale, Mich., by COOPER[21] proves that there is a well marked succession extending from pioneer conditions to the establishment of the climax forest. From beginnings both upon the rock shore and in the bogs two distinct lines lead to the same climax, characterized by *Calligeron Schreberi, Hylocomium proliferum*, and *Hypnum cristacastrensis* as dominant species. The importance of mosses as pioneers upon bare rock surfaces and in peat bogs has long been recognized, but the present study shows that they are of equal importance in the climax forest in promoting the accumulation of humus and in the conservation of soil moisture. This investigation represents a new departure in the field of ecology, and proves not only that the same general laws of succession hold among bryophytes as among seed plants, but that these plants of lower rank may often serve as indicators of the advancement attained by any particular forest association. This latter feature may prove of the greatest value in the study of our northern forests, where the number of tree species is reduced to a minimum.—GEO. D. FULLER.

Calcium-magnesium ratio.—LOEW[22] calls attention to the fact that the results obtained by MEYER and LEMMERMAN in their work on the calcium-magnesium ratio do not agree with those previously worked out by himself. He claims that the results obtained by them were due to the fact that the soi was insufficient in amount for the number of plants grown. The dry weight of their plants was only half the weight of plants grown under ordinary conditions. This dwarfing was due to the arresting of root growth, and no conclusion can be drawn concerning the calcium-magnesium ratios from plants grown under crowded conditions.—JOHN N. MARTIN.

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[21] COOPER, WILLIAM S., The ecological succession of mosses as illustrated upon Isle Royale, Lake Superior. Plant World **15**:197–213. 1912.

[22] LOEW, OSCAR, Über angebliche Widerlegung der Lehre vom Kalkfaktor. III. Landwirtschaftl. Jahrb. **42**:181–192. 1912.